

**WHAT IS CLAIMED IS:**

1. A method for creating an aperiodic recursive multiplex (ARM) code having a predetermined length by receiving a first sequence having  
5 a given length, comprising the steps of:

(a) outputting a third sequence by multiplying the first sequence by a second sequence alternating between +1 and -1, the second sequence being identical in length to the first sequence;

(b) outputting a fourth sequence as the ARM code by time-multiplexing  
10 the first sequence and the third sequence, when the length of the fourth sequence is identical to the predetermined length.

2. The method as claimed in claim 1, wherein the first sequence is created by a selected one of possible 2-bit combinations.

15

3. A method for creating an aperiodic recursive multiplex (ARM) code having a predetermined length by receiving a first sequence having a given length, comprising the steps of:

(a) outputting a third sequence by multiplying the first sequence by a  
20 second sequence alternating between +1 and -1, the second sequence being identical in length to the first sequence;

(b) outputting a fourth sequence by time-multiplexing the first sequence and the third sequence;

(c) re-designating the fourth sequence as the first sequence, when the  
25 length of the fourth sequence is not identical to the predetermined length, and then returning to step (a); and

(d) outputting the fourth sequence as the ARM code, when the length of the fourth sequence is identical to the predetermined length.

30 4. The method as claimed in claim 3, wherein the first sequence is

created by a selected one of possible 2-bit combinations.

5        5.        An apparatus for creating an aperiodic recursive multiplex (ARM) code having a predetermined length by receiving a first sequence having a given length, comprising:

        a multiplier for outputting a third sequence by multiplying the first sequence by a second sequence alternating between +1 and -1, the second sequence being identical in length to the first sequence; and

10        a multiplexer for time-multiplexing the first sequence and the third sequence multiplexer until the ARM code having the predetermined length is created.

        6.        The apparatus as claimed in claim 5, wherein the first sequence is created by a selected one of possible 2-bit combinations.

15

        7.        An apparatus for creating an aperiodic recursive multiplex (ARM) code having a predetermined length by receiving a first sequence having a given length, comprising:

20        a multiplier for outputting a third sequence by multiplying the first sequence by a second sequence alternating between +1 and -1, the second sequence being identical in length to the first sequence;

        a multiplexer for time-multiplexing the first sequence and the third sequence; and

25        a controller for re-designating a sequence output from the multiplexer as the first sequence and re-inputting the re-designated sequence to the multiplier and the multiplexer until the ARM code having the predetermined length is created.

30        8.        The apparatus as claimed in claim 7, wherein the first sequence is created by a selected one of possible 2-bit combinations.